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ABSTRACT

The verbal interactions of eight mother-child pairs (four Hebrew-speaking mothers and four English-speaking mothers with their 24-month-old language learning children) were recorded and analyzed to determine the frequency of occurrence of various interrogative forms in the mothers' language. Results indicated that English-speaking mothers produced significantly more questions that required the child to respond with a yes-no answer, while Hebrew-speaking mothers produced significantly more Wh type questions such as who, what, where, and why which placed the cognitive burden of the verbal interaction on the child. Both groups of mothers produced more why questions of the first level (about people or things) than the second level (about place, quantity, action, or purpose), and more second level than third level (about time or manner) questions. (Author/LH)

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# INTERROGATIVE TYPES IN PARENTAL SPEECH TO LANGUAGE LEARNING CHILDREN: A LINGUISTIC UNIVERSAL?

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The University of Minnesota Research, Development and Demonstration Center in Education of Handicapped Children has been established to concentrate on intervention strategies and materials which develop and improve language and communication skills in young handicapped children.

The long term objective of the Center is to improve the language and communication abilities of handicapped children by means of identification of linguistically and potentially linguistically handicapped children, development and evaluation of intervention strategies with young handicapped children and dissemination of findings and products of benefit to young handicapped children.

Abstract

This study investigated the frequency of occurrence of various interrogative types in the language of American mothers (English) and Israeli mothers (Hebrew) to their 24 month old language learning children.

It was found that American mothers produced significantly more questions that required the child to respond with a yes-no answer, while Israeli mothers produced significantly more Wh questions which placed the cognitive burden of the verbal interaction on the child. It was also found that both groups of mothers produced a similar hierarchy of frequency of various Wh questions. The relation between the various Wh questions and concept development in the child is discussed.

# Interrogative Types in Parental Speech to Language Learning Children; A Linguistic Universal?

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Deese (1970) suggests that the child acquires his native language through a process of constructing various hypotheses and eventually a theory about the language from the linguistic data that is made available to him. Clearly, an understanding of the child's language development without reference to the source from which he constructs the theory of his language is somewhat incomplete.

The basic purpose of this study is to acquire information regarding the kind of questions 24 month old children are exposed to in their linguistic environment.

One approach to classifying types of questions in the English language is with respect to the cognitive demands they impose on both the speaker and the listener. Accordingly, Cazden (1970) suggests a differentiation between yes-no and Wh questions. With yes-no questions, the major cognitive burden of the verbal interaction falls on the speaker, while the listener may respond appropriately with either a yes or a no. For example:

Q. Is it fun to play outside when the grass is green, the sun shines and you don't have to go to school?

R. Yes.

On the other hand, with respect to Wh questions, the major cognitive burden of the verbal interaction falls on the listener.

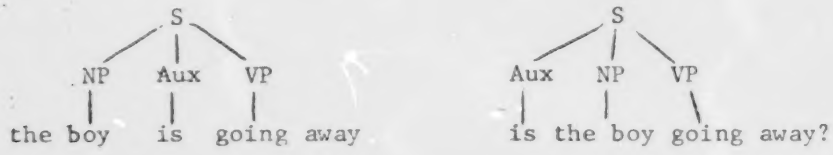
For example:

Q. Why is the duck under the bell?

R. Because it was raining outside and the duck didn't want to get wet so he stayed under the bell until it stopped raining.

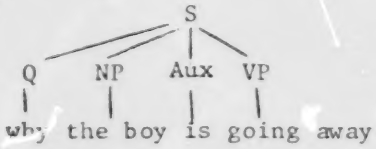
These two types of questions may also be differentiated with respect to the number of transformations necessary for their derivation. For a yes-no question, only one transformation is required: the auxiliary is exchanged with the subject noun phrase (Interrogative transformation).

Thus the following SAAD sentence is transformed into a yes-no question in the following way:

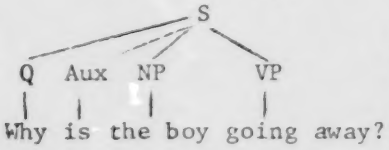



On the other hand, in order to construct the Wh question "why is the boy going away?" the following transformations must take place:

(1) The preposition transformation, i.e., the inclusion of the appropriate wh-question at the beginning of the sentence




(2) The interrogative transformation (the same as in yes-no question), in which the auxiliary is exchanged with the subject noun phrase.



The various Wh questions may be differentiated on semantic basis; i.e., they are associated with differing concepts (Lee & Canter, 1971). It is also suggested by the same authors that certain concepts develop before others, thus certain Wh questions emerge before others. The following is a hierarchy of concept development in the normal child's productive language with respect to the Wh questions; the higher the level, the more sophisticated is the concept, and the later it emerges in the language (Lee & Canter, 1971).

Level 1

| | |
|---|---|
| Person | Who? |
| Thing | What? What book? |

Level 2

| | |
|---|---|
| Place | Where? |
| Quantity | How many? How much? |
| Action | What are you doing? |
| Purpose | What is a hammer for? |

Level 3

| | |
|---|---|
| Time | When? |
| Manner | How do you do it? How big? |

Level 4

| | |
|---|---|
| Causality | Why? How come? |
| Probability | What if? How about coming with me? |

Level 5

Identification Whose? Which do you want?

Which + noun? (Which book?)

This study has two purposes:

(1) To acquire information regarding the kind of questions 24 month old American children are exposed to in their verbal interaction with their mothers.

(2) To investigate the extent to which the frequency of the questions asked by American mothers is universal, by studying the interrogative forms of Israeli mothers speaking to their 24 month old children.

## Method

Subjects:

Eight mother-child pairs participated in this study. Four mothers composing the Israeli group, had normal 24 month old children. The language spoken at home was Hebrew. The Israeli mothers had been in American for periods ranging from 6 to 18 months. Data was collected in America. The other four mothers, forming the American group, had normal 24 month old children; the language spoken at home was English. All mothers had completed the 10th grade. Three of the American mothers were college graduates.

Data gathering situation. A natural play situation was staged between each mother and her child. Duration of recorded verbal interaction was 60 seconds for each pair. Audio-visual recordings were made with the American mothers, while audio-recordings were made with the Israeli mothers.

Data collection. The language of the mothers was transcribed from the

tapes and analyzed. Transcriptions were made using Schiefelbusch (1963) criteria, that included criteria for utterance boundaries, exclusion of specific expressions and differentiating statements from questions. (Appendix A)

Parameters of investigations.

A. Yes No questions: The frequency of occurrence of all mothers' Yes No questions.

B. Wh questions: The frequency of occurrence of all the following wh questions in the mothers' language was investigated.

Level 1

| | | |
|---|---|---|
| Person | Who? | |
| Thing | What | What book? |

Level 2

| | | |
|---|---|---|
| Place | Where? | |
| Quantity | How many? | How much? |
| Action | What are you doing? | |
| Purpose | What is a hammer for? | |

Level 3

| | | |
|---|---|---|
| Time | When | |
| Manner | How do you do it? | How big? |

Level 4

| | | |
|---|---|---|
| Causality | Why? | How come? |
| Probability | What if? | How about coming with me? |

Level 5

| | | |
|---|---|---|
| Identification | Whose? | Which do you want? |
| | Which + noun? | (Which book?) |

## Results

Table I describes the frequency of occurrence and percentage of the various interrogative forms that occurred in the speech of the American mothers (English) and Israeli mothers (Hebrew) addressing their 24 month old children. Table I should be read as follows: A total of 60 questions was asked by all the American mothers. Of these 60, 32 or 53% were yes-no questions, and 28 or 47% were wh questions. It was also found that Level 1 of the wh questions accounted for 19 or 32% of all questions, Level 2 accounted for 4 or 7% of all questions and so on.

Table II presents the frequency of occurrence and percentage of the various wh questions from the total wh questions. Table II should be read as follows: The American mothers produced a total of 28 wh questions. Of these, 19 or 68% were of the Level 1 order, 4 or 14% of the Level 2 order, and so on.

## Discussion

Inspection of Tables I and II reveals that the 24 month old children in this study were exposed to both types of interrogatives: Yes-no and Wh questions. With the exception of the 5th level of Wh questions for the American children, each group as a whole was exposed to all Wh question levels.

An interesting finding is with regard to the differing frequencies of the two major types of questions investigated in this study. Fifty-three percent of all questions asked by American mothers were in the form of a yes-no type, while only 16% of all

questions asked by the Israeli mothers were of the similar order. On the other hand whereas 47% of all questions asked by American mothers were Wh type, 84% of all questions asked by the Israeli mothers were Wh type questions. This finding is especially startling with respect to the presumed cognitive demands associated with the Wh and yes-no questions. More than 50% of all the questions asked by the American mothers imposed a minimal cognitive burden on the child's part in the verbal interaction; he is simply asked to respond with a yes or no answer. Similar results were also found by Broen (1973). On the other hand, more than 80% of all the questions asked by Israeli mothers placed the cognitive burden of the verbal interaction on the child himself; a yes or no answer is not appropriate. A Chi Square Test confirmed these observations. ($\chi^2 = 20.19$, df = 1, $p < .001$).

Syntactically, there are some differences in the derivation of the Hebrew and English questions which may partially account for the wide discrepancy of the frequency of question types in both languages. In English, a yes-no question is derived through the usage of the interrogative transformation, and a Wh question by the prepositional and interrogative transformations. On the other hand, in Hebrew, the yes-no question produced by the mothers were for the most part SAAD sentences marked by a raised intonation at the end. The Wh questions in Hebrew were derived through the prepositional transformation only: It involved the selection of the appropriate Wh question and its placement at the beginning of the sentence.

Derivation-wise, both types of questions in the Hebrew language are less complex than their English counterparts. The extent to which

this accounts for the variation in their frequency in both languages is a matter for empirical investigation. However, the fact still remains that the Israeli children in this study had significantly fewer questions that allowed them to get by with a yes or no answer, and significantly more questions that required of them a response in a manner other than yes or no.

Close inspection of both tables with respect to the various Wh levels suggests that both groups of mothers produce more Wh questions of the first level than the second level, and more of the second level than the third level. As pointed out previously in this paper, the Wh levels were constructed in an order sensitive to the conceptual development of the child (Lee & Canter, 1971). The same authors found that the normal developing child would produce Wh questions of the level 1 order before Wh of the level 2 order and Wh of the 2nd level before Wh of the 3rd level and so on (1971). We found that the same developmental levels suggested by Lee and Canter may also be differentiated on the basis of their frequency of occurrence in the mothers' language.

Whether children produce Wh of level 1 earlier than any other Wh questions because these are the questions produced most often by their mothers is a distinct possibility which has been entertained elsewhere (Brown, 1970; Buium, 1973). Why, then, do mothers produce certain Wh more frequently than others? Is it because mothers are somehow sensitive to the current level of their child's conceptual development and orient their questions accordingly? This too is a matter for empirical investigation. It appears conceivable that

being in a certain situation, and the purpose of being in that situation, impose some restrictions on the kind of language to be used. Thus, in a play situation such as staged in this study where a mother and her 24 month old child interact in a playful way, certain Wh questions are used in the language more often than others. Whatever the reason might be, the phenomena appears to be universal: American and Israeli mothers have produced a strikingly similar hierarchy of frequency of Wh usage. Clearly additional work in other languages is necessary to substantiate these findings.

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Footnote[1]

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Table I

The Frequency of Occurrence and Percentage of the Various Interrogative Forms in the Mothers' Language

| Group of Mothers | Total Ques. | yes - no | | Wh | | WH Levels | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 1 | | 2 | | 3 | | 4 | | 5 | |
| | | N | % | N | % | N | % | N | % | N | % | N | % | N | % |
| American mothers (English) | 60 | 32 | 53% | 28 | 47% | 19 | 32% | 4 | 7% | 3 | 5% | 2 | 3% | 0 | 0 |
| Israeli mothers (Hebrew) | 69 | 11 | 16% | 58 | 84% | 47 | 68% | 8 | 12% | 1 | 1.5% | 1 | 1.5% | 1 | 1.5% |

Table II

The Frequency of Occurrence and Percentage of the Various Wh Questions from the Total Wh Questions

| Group of Mothers | Total Wh | WH Levels | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1 | | 2 | | 3 | | 4 | | 5 | |
| | | N | % | N | % | N | % | N | % | N | % |
| American mothers (English) | 28 | 19 | 68% | 4 | 14% | 3 | 11% | 2 | 7% | 0 | 0 |
| Israeli mothers (Hebrew) | 58 | 47 | 81% | 8 | 14% | 1 | 1.7% | 1 | 1.7% | 1 | 1.7% |

Appendix A

The following criteria for transcription was taken from Schiefelbusch, 1963, pp. 100-102.

"In preparing these transcripts or protocols, you will be asked to perform a number of functions simultaneously:

1. You will have to do a careful and accurate job of representing all the verbal activity that occurred within each session. This is extremely important since all subsequent analyses will derive from the transcripts you type.
2. You will have to differentiate the verbal activity of the child from that of the adult.
3. You will have to learn several rules concerning the designation of 'vocal response units' so that you can mark off responses on transcripts as you prepare them. You will also have to indicate whether each vocal response unit is a statement or a question.

Before discussing specific rules for marking off responses on the transcripts, I would like to present some general instructions for your consideration:

A. General Instructions:

1. Type the transcripts in the predetermined random order.
2. Differentiate verbalizations of the adult from those of the child by placing the identifying symbol (a) in the margin for adult verbalizations and (c) for remarks made by the child. (only the mothers' Language was transcribed

in the present study).

3. Do not use capitals (except for proper names or for the pronoun "I"), commas, question marks, or any other form of punctuation in preparing these transcripts. You will use apostrophes, however, to indicate a contraction (I'm, he's) or to indicate possession (the aide's house).
4. Some of the remarks made by either the child or the adult will be completely or partially incomprehensible. This may be because the speaker was particularly soft-spoken, mumbled, had unintelligible speech, or because some noise obscured what the speaker was saying. If a response (to be defined later) is either partially or completely incomprehensible, exclude it from the transcript. Even if the response has only one incomprehensible word, leave out the entire response.
5. Sometimes the adult or the child will make some non-communicative noises during the session. For example, the adult may say, 'The dog goes bow-wow and the lion goes grr.' If, as in the above remark, the noise is an integral part of the response, type it in. If, however, the noise is not essential, omit it. For example the child may say, 'Bow-wow, here comes the dog.' In this instance omit the expression 'bow-wow.'
6. Interjections such as 'uh,' 'er,' should be omitted except when they are used as words. Examples:

Give me the er book.

Uh uh, you can't have it.

The 'er' should be omitted.

'Uh uh,' meaning 'no' should be typed.

7. If the speaker starts but does not finish a word and you are quite sure what he was going to say, include the word, but place it between parentheses. For example:

I th- i know he's coming.

I (think) I know he's coming.

If you can't tell what the started word was meant to be, simply exclude it.

B. Designating 'vocal response units.' In this study we are concerned with the speech behavior of the adults and children rather than with how their responses would look on paper. We are preparing these transcripts as a convenience, but more basically we are concerned with how the individuals used speech in the actual experimental sessions. We are not interested in whether or not a given response was grammatically complete and accurate. Rather we want to know whether it was functionally complete in terms of the ongoing exchange between the adults and the children. In normal conversation we don't always have a well defined predicate and nominative; and we indicate the beginning and end of our expressions by pauses, inflections, shifts in topics, etc., rather than by commas, periods, or exclamation points. That is why we have asked you not to put these punctuation marks in the transcripts you prepare. A little later I will describe the system you will use to indicate

when a vocal response unit begins and ends. First, let us consider some of the rules that will help you decide when such a unit has occurred.

1. In general, a vocal response unit is a unit of spoken language marked off on either side by a pause or by some change in inflection.
2. A vocal response unit is considered finished when the speaker comes to a complete stop and allows his voice to fall.
3. A vocal response unit is considered finished when the speaker comes to a complete stop with either a questioning or exclamatory inflection.
4. A vocal response unit is considered finished when the speaker in some manner clearly indicates he does not intend to complete the remarks.
5. A vocal response unit is considered completed when one speaker terminates and the other begins speaking.
6. A vocal response unit may include several simple utterances. If one simple utterance or remark is immediately followed by another with no pause for breath, they are considered only one response unit if the second remark is clearly subsidiary to the first.
7. A vocal response unit may be a single word such as 'yes' or 'uh huh' or it may comprise many words such as, 'I'm going to the movies with my brother and sister and mother and father tomorrow if it doesn't rain.'
8. A single expression of affirmation ('yeah,' 'yep,' 'uh huh,' 'yes'), or of negation ('no,' 'nope,' 'nah,' 'naw'),

or of interrogation ('huh,' 'what,' 'eh') may be complete responses. You are to determine by listening to the tape whether an utterance is simple a non-communicative grunt (see No. 9 below) or serves communicatively to indicate affirmation, negation, or interrogation. Examples:

(a) do you like me (one response)

(c) huh (one response)

(a) I said do you like me (one response)

(c) oh yeah (one response)

9. Expressions such as 'aw,' 'aah,' 'ow,' 'haha,' 'uh,' 'oop,' when they are not used as either affirmation, negation, or interrogation do not count as responses and should be omitted from the transcripts.

10. Utterances that are not recognizable as words or word approximations do not count as responses. Examples:

(a) what color is that (one response)

(c) pa (no response)

11. Occasionally the child and adult will be talking simultaneously. For example, the adult may start to speak and the child may interject a remark so that they are both talking at the same time. If this occurs, simply separate the response of the adult from that of the child on the transcript. That is, complete typing the adult responses and then indicate the child responses on the next line.

C. Differentiating Statements from Questions. All responses will be marked as either statements or questions. In normal conver-

sation questions are typically indicated by the use of particular words, by the way the words are arranged in the response, or simply by inflection.

1. Occasionally a response may start out as a question but end as a statement. When this occurs, score the response a question. Examples:

   (c) can I I'm going to eat my candy now

   (a) would you like me to here let me help you with that

   Both of these examples would be scored as questions.

2. A response that starts out as a statement but ends as a question is also scored a question.

   Examples:

   (c) I think I'll do you think it is ok to tell the aide

   (a) if I let you will you no I don't think I had better

D. Marking the Transcripts. You are to mark the responses in the following manner:

1. Indicate the beginning of a response by (a) underlining the first word and by (b) placing the number of the response above the first word. Number adult and child responses separately.

2. You will indicate the end of a response by placing either a single stroke (/) or a double stroke (//) after the last word.

   (a) Use the single stroke (/) when the response is a statement.

   (b) Use the double stroke (//) when the response is a question.

3. Even if the response unit consists of only one word, it is important to underline that word and follow it by the appropriate number of strokes.
4. Responses that contain words that are incomprehensible or for some other reason are excluded from the transcript will not be counted.
5. Don't forget, number adult and child responses separately. It is very important that you do not fail to indicate both the beginning and ending of each response and that you number the responses accurately."

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